Tansy Ragwort

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Tansy ragwort, *Senecio jacobaea L.*, is a serious weed problem in western Oregon and Washington. Sightings east of the Cascades and in southern Oregon have increased; and it is a potential problem for eastern Oregon, Washington, and Idaho.

Tansy ragwort was introduced into the United States from Europe. The first reported observation in Oregon was in 1922. Although the heaviest infestations of tansy ragwort are in the Coast Range, it has succeeded in spreading across western Oregon and Washington and up the western slopes of the Cascades, especially in heavily logged areas. In some areas it is at or near the crest, and it is invading areas east of the Cascades and southern Oregon. Tansy ragwort is one of the first plants to invade cutover forest lands. It is not usually found in annually-tilled fields; but it can invade irrigated or nonirrigated pastures, woodland pastures, unused lands, perennial seed fields, and (occasionally) alfalfa fields.

Tansy ragwort is found in the drier regions of Europe and Asia and in Siberia; therefore, it is believed that it can complete its life cycle successfully throughout most of the Northwest. It will survive under most soil moisture conditions, even the hot and dry summers of southern and eastern Oregon and Washington, and will overwinter successfully in areas where temperatures reach -20°F or lower.

Use of ragwort-contaminated straw from western Oregon has resulted in tansy infestations on roadside improvement projects in eastern Oregon. Straw and hay brought in by hunters is a major carrier.

Life cycle

Tansy ragwort is a biennial plant. Most seeds germinate in the fall, and plants form rosettes (photo 2). The following year, plants send up flower stalks (referred to as *bolting*), produce viable seed, and die unless cut, pulled, or broken. Damage may result in regrowth and blossoming the third year; thus, it can be a perennial. Seeds may be viable in the soil 3 to 4 years, or even longer.

Tansy ragwort is a conspicuous plant when it blooms. The daisylike golden flowers have a long blossoming period (photo 4). The rosette plants have irregular, lobed leaves with terminal lobes larger than lateral lobes (photo 5). The leaves, 5 to 9 inches long, are attached directly to the main stalk. Leaf color ranges from light to dark green. The plant spreads principally by seeds, and individual plants may have as many as 150,000 seeds. Most of these seeds fall within a few hundred feet of the parent plant, but some are carried great distances by wind and water.

In the Pacific Northwest, cattle numbers east of the Cascades far exceed those west of the Cascades. The spread of this poisonous weed to areas east of the Cascades and to southern Oregon may result in severe losses of livestock.

Toxicity

All parts of the plant are poisonous to cattle and horses and, to some extent, sheep. It is reported to contain six different alkaloids, which accumulate in the liver and cause liver damage. All growth stages and all parts of the plant contain roughly the same alkaloid concentration per unit of plant weight. Fortunately, tansy ragwort plants are not very palatable; therefore, the large plants usually are not eaten. Poisoning often occurs when seedlings are ingested accidentally by cattle and horses in a pasture situation. Small seedlings are intermixed with desirable forage, and livestock cannot distinguish between the seedlings and desirable forage. Contaminated hay causes poisoning since the dry weed is consumed readily with the rest of the hay.

Removing tansy ragwort from the diet, and feeding high-quality forage and grain, may stop liver damage and enable the animal to survive. Complete recovery is rare. Symptoms of the poisoning include swelling, inflammation of membranes around eyes and nose, diarrhea, blood in feces, rough coat, excessive fluid in the body cavity, and a droopy appearance.

Chemical control

The most effective and economical herbicide for control of tansy ragwort is 2,4-D. Excellent control has been obtained by spraying the rosette stage of growth in early spring or midfall after fall rains have initiated new growth. For small spray equipment, use 2 fluid ounces of 2,4-D for each gallon


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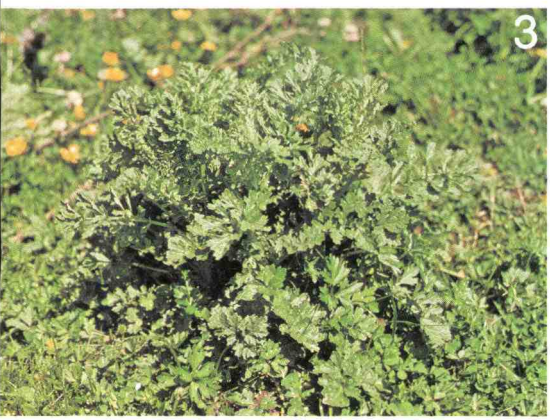
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of water. Wet the plants thoroughly for good control. Plants die slowly after being sprayed. Spray on warm and sunny days when rain is not expected within 4 to 6 hours.

Controlling tansy ragwort with 2,4-D is less effective after the plants start sending up flowering stalks. Check the sprayed area about 10 days after the first herbicide application, to spray plants missed by the first application. Spray rosettes and seedlings at any time when the plants are actively growing.

After the flower stalks start to elongate, other herbicides must be used to obtain control, usually combined with 2,4-D.

Spraying instructions

- **When tansy is small or in rosette stage,** use 2,4-D in the amine, low-volatile ester (LVE), or emulsifiable acid form. Apply 1 to 2 pounds of active material per acre. If formulation is 4 pounds active per gallon, then use 1 to 2 quarts per acre in 20 or more gallons of water. When the ragwort plants are small, use lower rate. Use 2 fluid ounces of material for each gallon of water in hand sprayer.

- **When tansy is large or when flower stalk has elongated,** use dicamba (Banvel) or dicamba plus 2,4-D. Apply 1 pound active (1 quart) of dicamba or 0.5 to 1 pound dicamba plus 2 quarts of 2,4-D per acre, in 20 or more gallons of water.

Always follow label instructions. Check the product label for grazing restrictions before applying herbicides. These materials will injure or kill clovers.

Even though sheep are not completely immune to the toxic effects of tansy, sheep grazing is an effective way to control tansy ragwort if the animals are confined by fences to the ragwort-infested area. Graze sheep in these areas for several successive years. Intensive grazing of ragwort-infested areas for a number of years results in the absence of the flowering stage, since seedlings and rosettes are consumed before they have a chance to flower and produce more seed.

Biological control

Biological control, using insects that feed exclusively on tansy ragwort, is effective in reducing plant density and is recommended for areas where other controls are not practical or economical. Usually, it requires several years to establish an insect population large enough to reduce a weed population. The objective is not to eradicate tansy ragwort but to reduce it to a level that's not economically important. Here are three examples:

The cinnabar moth is the most widely used. The black and red adult moths are most active in May and June. Females deposit 100 to 300 yellow eggs, in clusters of about 40, on the undersides of leaves. The eggs hatch in 1 to 3 weeks; the larvae feed on leaves, buds, and flowers—frequently defoliating all plants in an area. Larvae need 4 to 6 weeks to develop; full-grown larvae are

Photo captions

1 Tansy ragwort seedling is most difficult stage to identify.

2 The rosette stage is the most effective time for spraying with 2,4-D.

3 Spraying at the early bolting stage or later may not yield good control. Pulling will prevent the plant from going to seed, but the plant may regrow.

4 Flowering tansy ragwort has very distinct ray flowers. Each plant may produce 150,000 viable seeds.

5 Tansy ragwort leaves and the blade region near the tip are deeply lobed. Leaf color may vary from light to dark green.

6 Larvae of the cinnabar moth can reduce tansy ragwort populations to low levels in areas where other controls are not practical or economical.

7 Common groundsel *(Senecio vulgaris)* flower head, as with most groundsels, does not open any wider than pictured here. This plant generally grows to a height of 1½ feet; has no ray flowers.

8 Common tansy has no ray flowers on the button-like heads. Leaves resemble a fern and are larger than those of tansy ragwort.

about 1 inch long and can be recognized by their black and orange bands (photo 6). On reaching maturity, larvae transform to pupae in the soil or beneath ground trash and remain inactive until adults emerge in the spring.

The ragwort seed fly, somewhat resembling a house fly, emerges in June when tansy ragwort is developing seed heads. Females deposit eggs among the florets or alongside the green bracts of the flower heads (usually, only one egg per head); eggs hatch in 3 to 4 days. Larvae penetrate the seed heads and feed on the developing seeds for several months. They consume 75 to 95% of the seeds; uneaten seeds in the head fail to germinate. It's easy to detect attacked flower heads; the florets above the larvae turn brown and push upward, protruding above nearby florets. The raised florets are cemented together by a frothy substance excreted by the larvae. A whitish gray fungus also grows on the attacked heads. Mature larvae drop from the seed heads, enter the soil, pupate, and overwinter. There is only one generation a year.

Adults of **the tansy ragwort flea beetle** (less than ⅛ inch long and tan in color), lay eggs on the root crowns of rosettes or in nearby soil in the fall. During fall, winter, and early spring, larvae burrow into and feed on the roots, injuring or killing them. In late spring, larvae leave the roots and pupate in the soil. Emerging adults feed on the leaves of tansy ragwort for several weeks, but then enter a 3- to 5-month resting stage. In the fall, adults once again feed, mate, and deposit eggs. This beetle's damage complements the damage inflicted by the cinnabar moth and/or the ragwort seed fly.

All three insects occur in western Oregon and western Washington. Releases can be made in sites these insects don't presently occupy. When choosing sites for releases, the primary concerns are location and the practicability of other controls. Contact your State Department of Agriculture for information on availability of insects.

Because of the time required to establish insects for control, and because control is not completed once it's established, biological methods are not recommended to suppress infestations in Idaho, eastern Washington, and eastern and southern Oregon. Herbicides can provide control immediately, preventing further spread.

Similar-appearing plants

Three plants are often confused with tansy ragwort:

Common tansy *(Tanacetum vulgare),* often called "bitter buttons," "hind head," or "parsley fern," may grow to 5 feet or more (photo 8). It contains a poisonous oil called *tanacetin.* Because of the plant's bitter taste, however, livestock seldom eat it.

Common groundsel (*Senecio vulgaris*) is an annual plant, growing 4 to 16 inches tall, with hollow stems. Leaves are alternate: lower leaves have stalks; upper leaves clasp the plant stem. All leaves are deeply lobed and toothed, but much smaller than tansy ragwort leaves. Flowers in each head have about 21 slender, black-tipped bracts at their base (photo 7). Seeds are long and narrow, with a cluster of fine hairs longer than the seed attached to the upper end. It is seldom eaten by livestock.

Woodland groundsel (*Senecio sylvaticus)* is an annual weed. It can grow from 1 to 3½ feet tall, but usually it's confused with tansy ragwort only in the initial growth states. Leaves are greenish gray, appear woolly, and don't have the large terminal lobe common to most tansy ragwort plants. Flower heads are small and inconspicuous; rays are absent. This plant emits a strong, nauseating odor when bruised.

What you can do

Tansy ragwort is being sighted in various intermountain areas of the Pacific Northwest. If you find this weed invading new areas, you can check or prevent its spread by doing one of the following:

If it is in the flowering stage: First, carefully cover the plant with a plastic bag to prevent seed spread. Then pull up the plant, pour fuel oil on it, and burn it in a safe place.

If it is in the rosette or seedling stage: Pull the plant **OR** spray it with 2,4-D or dicamba, according to the spraying instructions on page 4. Note the exact location of your sighting. Then report your sighting immediately:

- **East of the Cascade Mountains,** report it to your county Extension office or to your State Department of Agriculture.
- **West of the Cascade Mountains,** report it to your county weed control district or to your State Department of Agriculture.

If you're not certain of your identification, take a sample of the plant—including flowers, leaves, and stems—to your Extension office.

Here are the addresses and phone numbers of the agriculture departments:

Oregon State Department of Agriculture
635 Capitol NE
Salem, OR 97310-0110
phone (503) 378-4987

Washington State Department
of Agriculture
406 General Admin. Bldg., AX-41
Olympia, WA 98504
phone (206) 753-5050

Use pesticides safely!

- **Wear** protective clothing and safety devices as recommended on the label. **Bathe or shower** after each use.
- **Read** the pesticide label—even if you've used the pesticide before. **Follow closely** the instructions on the label (and any other directions you have).
- **Be cautious** when you apply pesticides. **Know** your legal responsibility as a pesticide applicator. You may be liable for injury or damage resulting from pesticide use.

Idaho State Department of Agriculture
P.O. Box 7980
Boise, ID 83701
phone (208) 334-3521

To find the address and phone of your county Extension office, look under "County Government" in the telephone directory for your county seat.

Pacific Northwest cooperative Extension bulletins are joint publications of the three Pacific Northwest states—Oregon, Washington, and Idaho. Similar crops, climate, and topography create a natural geographic unit that crosses state lines. Since 1949 the PNW program has published more than 300 titles. Joint writing, editing, and production has prevented duplication of effort, broadened the availability of faculty specialists, and substantially reduced costs for the participating states.

This publication was prepared by Oregon State University Extension weed specialists in cooperation with the Oregon State Department of Agriculture and in consultation with Extension weed specialists of Washington State University and the University of Idaho.

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